

3.0 PROTECTIVE EQUIPMENT AND AIR MONITORING

3.1 PROTECTIVE EQUIPMENT

Work for this project will be conducted in Level D protection. Level C protection is presented as a contingency only and represents a modified protection level, incorporating respiratory protection only where required by site conditions. Situations requiring Levels A or B protection are not anticipated for this project; should they occur, work will stop and the HSP will be amended, as appropriate, prior to resuming work.

Workers performing general site activities where skin contact with highly contaminated materials is unlikely and inhalation risks are not expected will wear coveralls, eye protection, gloves (whenever handling samples), and safety boots. Level D protection will consist of the following:

- Hard hats
- Rain gear or poly-coated Tyvek (wet operations) or uncoated Tyvek (dry operations)
- Safety glasses
- Steel-toed, chemical-resistant boots
- Nitrile, neoprene, or equivalent inner and outer gloves.

Workers performing site activities where heavily contaminated materials are detected will wear chemical-resistant gloves (nitrile, neoprene, or other appropriate outer and inner gloves) and coated Tyvek or other chemical-resistant suits. Workers will use face shields or goggles, as necessary, to avoid splashes.

When performing activities in which inhalation of chemical vapors and dusts is a concern, workers will wear half-mask or full-face air-purifying respirators with combination cartridges. Cartridges should be changed on a daily basis, at a minimum. They should be changed more frequently if chemical vapors are detected inside the respirator or other symptoms of breakthrough are noted (e.g., irritation, dizziness, breathing difficulty).

3.2 AIR MONITORING

Direct reading instruments give immediate, real time readings of contaminant levels. Reliable direct reading instruments, such as the combustible gas indicator and photoionization detector (PID) are available for situations commonly encountered at hazardous and contaminated substance sites. The appropriate type of monitoring equipment depends on the suspected type and concentration of chemical

contaminants. The primary limitation of direct reading instruments is that most do not quantify specific chemical compounds.

Air monitoring for hydrogen sulfide will be conducted during soil excavation activities. Instruments used to monitor for these contaminants are listed in Table C-1 and include a PID and MSA 361 or equivalent monitor. The instruments will be calibrated prior to each day's activity according to manufacturer's instructions. Calibration will be recorded in the health and safety logbook or field notes. Readings shall be entered into the logbook at a minimum of 30-minute intervals.

4.0 SAFETY EQUIPMENT LIST

The following safety equipment must be available onsite:

- First aid kit
- Mobile telephone
- Steel-toed safety boots
- Chemical-resistant coveralls and gloves
- Safety glasses
- Hard hat
- Air monitoring instruments
- Half-face respirator with cartridges.

5.0 EXCLUSION AREAS

If migration of chemicals from the work area is a possibility, or as otherwise required by regulations or client specifications, site control will be maintained by establishing clearly identified work zones. These will include the exclusion zone, contaminant reduction zone, and support zone, as discussed below.

5.1 EXCLUSION ZONE

Exclusion zones will be established around each excavation location. Only persons with appropriate training and authorization from the Project H&S Coordinator will enter this perimeter while work is being conducted.

5.2 CONTAMINATION REDUCTION ZONE

A contamination reduction zone will consist of a decontamination station that must be used to exit the exclusion zone. The station will have the brushes and wash fluids necessary to decontaminate personnel and equipment leaving the exclusion zone. Care will be taken to prevent the spread of contamination from this area.

5.3 SUPPORT ZONE

A support zone will be established outside the contamination reduction area to stage clean equipment, don protective clothing, take rest breaks, etc.

6.0 MINIMIZATION OF CONTAMINATION

To make the work zone procedure function effectively, the amount of equipment and number of personnel allowed in contaminated areas must be minimized. Do not kneel on contaminated ground, stir up unnecessary dust, or perform any practice that increases the probability of hand-to-mouth transfer of contaminated materials. Eating, drinking, chewing gum, smoking, or using smokeless tobacco are forbidden in the exclusion zone.

7.0 DECONTAMINATION

Decontamination is necessary to limit the migration of contaminants from the work zone(s) onto the site or from the site into the surrounding environment. Equipment and personnel decontamination are discussed in the following sections, and the following types of equipment will be available to perform these activities:

- Boot and glove wash bucket and rinse bucket
- Scrub brushes – long handled
- Spray rinse applicator
- Plastic garbage bags
- 5-gallon container with soap solution.

Proper decontamination (decon) procedures will be employed to ensure that contaminated materials do not contact individuals and are not spread from the site. These procedures will also ensure that contaminated materials generated during site operations and during decontamination are managed appropriately. All nondisposable equipment will be decontaminated in the contamination reduction zone.

Personnel working in exclusion zones will perform a limited decontamination in the contamination reduction zone prior to changing respirator cartridges (if worn), taking rest breaks, drinking liquids, etc. They will decontaminate fully before eating lunch or leaving the site. The following describes the procedures for decon activities:

1. In the contamination reduction zone, wash and rinse outer gloves and boots in portable buckets.
2. Inspect protective outer suit, if worn, for severe contamination, rips, or tears.
3. If suit is highly contaminated or damaged, full decontamination will be performed.
4. Remove outer gloves. Inspect and discard if ripped or damaged.

Construction equipment decontamination will be performed at the equipment decontamination pad to be constructed by the contractor. Portions of construction equipment that has been in contact with contaminated materials will be cleaned at the equipment decontamination pad prior to leaving the site.

8.0 DISPOSAL OF CONTAMINATED MATERIALS

All disposable equipment and personal protective equipment will be rinsed to remove gross contamination and placed inside of a 10 mil polyethylene bag or other appropriate containers. These disposable supplies and containers will be removed from the site by the contractor and disposed of in a normal refuse container (dumpster) and/or along with excavated soil to be disposed at an appropriate solid waste landfill facility.

9.0 SITE SECURITY AND CONTROL

Site security and control will be the responsibility of the Project H&S Coordinator and the selected Contractor. The “buddy-system” will be used when working in designated hazardous areas. Any security or control problems will be reported to the Contractor or the Port as appropriate.

10.0 SPILL CONTAINMENT

It is not anticipated that bulk chemicals subject to spillage will be used by Landau Associates personnel on this project. Accordingly, a spill containment plan is not included with this HSP. The selected Contractor will be required to prepare and implement a spill containment plan as part of its work activities.

11.0 EMERGENCY RESPONSE PLAN

The Emergency Response Plan outlines the steps necessary for appropriate response to emergency situations. The following paragraphs summarize the key Emergency Response Plan procedures for this project.

11.1 PLAN CONTENT AND REVIEW

The principal hazards addressed by the Emergency Response Plan include the following: fire or explosion, medical emergencies, uncontrolled contaminant release, and situations such as the presence of chemicals above exposure guidelines or inadequate protective equipment for the hazards present. However, in order to help anticipate potential emergency situations, field personnel should always exercise caution and look for signs of potentially hazardous situations, including the following as examples:

- Visible or odorous chemical contaminants
- Drums or other containers
- General physical hazards (e.g., traffic, cranes, moving equipment, sharp or hot surfaces, slippery or uneven surfaces)
- Live electrical wires or equipment; and underground pipelines or cables.

These and other potential problems should be anticipated and steps taken to avert problems before they occur. All personnel will certify (Attachment 2) that they are familiar with the contents of this plan and acknowledge their agreement to comply with the provisions of the plan.

The Emergency Response Plan will be reviewed during the onsite health and safety briefing so that all personnel will know what their duties are should an emergency occur.

11.2 PLAN IMPLEMENTATION

The Project H&S Coordinator will act as the lead individual in the event of an emergency situation and evaluate the situation. This individual will determine the need to implement the emergency procedures, in concert with other resource personnel including client representatives, and the Corporate H&S Manager. Other onsite field personnel will assist the H&S Coordinator as required during the emergency.

If the Emergency Response Plan is implemented, the Project H&S Coordinator or designees are responsible for alerting all personnel at the affected area by use of a signal device (such as a hand-held air horn), visual, or shouted instructions, as appropriate.

Emergency evacuation routes and safe assembly areas will be identified and discussed in the onsite health and safety briefing, as appropriate. The buddy-system will be employed during evacuation to ensure safe escape, and the Project H&S Coordinator will be responsible for roll-call to account for all personnel.

11.3 EMERGENCY RESPONSE CONTACTS

Site personnel must know whom to notify in the event of Emergency Response Plan implementation. The following information will be readily available at the site in a location known to all workers:

- Emergency Telephone Numbers: see list in Attachment 1
- Route to Nearest Hospital: see directions and map in Attachment 1
- Site Descriptions: see the description at the beginning of this plan
- If a significant environmental release of contaminants occurs, the federal, state, and local agencies noted in this plan must be notified within 24 hours. Contact the Project Manager as soon as possible and he/she will be responsible for notifying agencies listed in Attachment 1. If the release to the environment includes navigable waters, also notify the National Response Center.

In the event of an emergency situation requiring implementation of the Emergency Response Plan (e.g., fire or explosion, serious injury, tank leak or other material spill, presence of chemicals above exposure guidelines, inadequate personnel protection equipment for the hazards present), cease all work immediately. Offer whatever assistance is required, but do not enter work areas without proper protective equipment. Workers not needed for immediate assistance will decontaminate per normal procedures (if possible) and leave the work area, pending approval by the Project H&S Coordinator for re-start of work. The following general emergency response safety procedures should be followed.

11.4 FIRES

Landau Associates personnel will attempt to control only very small fires. If an explosion appears likely, evacuate the area immediately. If a fire occurs that cannot be readily controlled, then immediate intervention by the local fire department or other appropriate agency is imperative. Use these steps:

- Contact fire agency identified in the site-specific plan
- Inform Project Manager/Project H&S Coordinator of the situation.

Contact 911 if a medical emergency occurs. If a worker leaves the site to seek medical attention, another worker should accompany the patient. When in doubt about the severity of an accident or exposure, always seek medical attention as a conservative approach. Notify the Project Manager of the outcome of the medical evaluation as soon as possible. For minor cuts and bruises, an onsite first aid kit will be available.

If a worker is seriously injured or becomes ill or unconscious, immediately request assistance from the emergency contact sources noted in the site-specific plan. Do not attempt to assist an unconscious worker in an untested confined space without applying confined space entry procedures or without using proper respiratory protection, such as a self-contained breathing apparatus.

In the event that a seriously injured person is also heavily contaminated, use clean plastic sheeting to prevent contamination of the inside of the emergency vehicle. Less severely injured individuals may also have their protective clothing carefully removed or cut off before transport to the hospital. If it is deemed appropriate to transport the victim to the hospital, follow the route map on Attachment 1.

11.5 PLAN DOCUMENTATION AND REVIEW

The Project Manager/Project H&S Coordinator will notify the Corporate H&S Manager as soon as possible after an emergency situation has been stabilized. The Project Manager will also notify the appropriate client contacts, and regulatory agencies, if applicable. If an individual is injured, the Project Manager will file a detailed Accident Report with the Corporate H&S Manager within 24 hours.

The Project Manager and Corporate H&S Manager will critique the emergency response action following the event. The results of the critique will be used in to improve future Emergency Response Plans and actions.

12.0 MEDICAL SURVEILLANCE

A medical surveillance program has been instituted for Landau Associates and will also be in effect for Landau Associates' subcontractor employees having exposures to hazardous substances. For certain Landau Associates field personnel, exams are given before employment; annually, thereafter; and upon termination. Content of exams is determined by the Occupational Medicine physician, in compliance with applicable regulations, and is detailed in the Landau Associates General Health and Safety Program.